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ABSTRACT

According to Duke and Newicki, the distance maintained by a subject towards an approach stimulus is closely related to the internal structures of his personality. The test puts the subject's projective personality and the perception that the group has of the subject into relief. Duke and Newiski's "Comfortable Interpersonal Distance" (C.I.D.) was applied to a sample of 54 subjects. Once the subject's minor and major tendencies to the approach were measured, Moreno's sociometric test was applied to the group to which they belong. At the same time the subject's other characteristics were shown using Gordon's "Survey of Interpersonal Values" (S.I.V.) questionniare on the values which are held to be important in interpersonal relationships, and using Machover's "Draw a Human Figure" (DHF) test for the projective study of the self-image. From the results of the various tests certain significant differences in spatial behavior emerged between popular, isolated, and excluded subjects. In particular, the importance--of the behavior of the subject's interaction--of the projective perception and the group's perception was shown. An attempt within the total sample was made to show the existence of any significant sex differences. (Author)

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"Comfortable Interpersonal Distance": aspects of the interpersonal behaviour in a sample of 16 year old subjects, males and females.
- comparative ecology of human development.

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According to Duke and Newicki the distance maintained by a subject towards an approach stimulus is closely related to the internal structures of his personality.

According to the subject's greater or lesser tendency to approach others, a certain type of relationship is experienced as intimate and at the same time the subjects find it comfortable to keep a given reciprocal distance.

This statement, can also be related to Lewin's topology according to which a closed personality puts up very strong barriers which affect the spatial relationships in the sense of a greater comfortable distance maintained towards other people.

Description of the Comfortable Interpersonal Distance Scale.

The Comfortable Interpersonal Distance Scale is a paper and-pencil measure corresponding to and derived from actual body-boundary roomsas used by Rowls, treg and McGaffey (1969) and Frankel and Barrett (1971).

The figural layout is in the form of a plane with eight radii emanating from a common point, each 80 mm radius being associated with a randomly numbered "entrance" to what is presented as an imaginary "round room".

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Distance between the center point and any location on a given radius is easily measurable (in millimeters) and reflects our assumption that interpersonal space is a continuous variable. Typical instructions ask subjects to imagine themselves the center point of the diagram (room) to respond to imaginary persons (stimuli) approaching them along a particular radius by making a mark on the radius indicating where they would prefer the specific stimulus to halt, i.e., where they think they might begin to feel uncomfortable with the stimulus' closeness.

Subjects' responses are scored at the distance in millimeters between the mark on a specific radius and the center of the CID.

The present form of the CID was devised so as to allow for administration to a wide age range, to obviate the importance of reading abilities, as well as to be intrinsically interesting to younger age groups eight radii were utilized in an attempt to provide a method of diagramming complete body boundary areas as done by Frankel and Barrett (1971). That is, the task enablesthe subjects to imagine that they are being approached from eight different directions,thereby defining a closed personal space area.

The authors believe that a viable framework may be found in social learning theory as developed by Rotter (Rotter 1954;Chance e Phaese 1972). This approach has been chosen for several reasons.

Firstly, our orientation is that social behaviour is learned and followsclearly delineable rules. Secondly,empirical studies (Tolor,Brannigam, and Murfly, 1970 Tolor

and Jalowiec, 1968) indicate that locus of control (a generalized expectancy and an integral part of social learning theory) served as a mediator in interpersonal distancing responses. Thirdly, it has become clear from our data that interpersonal distance is the result of an interaction between an individual's prior history of reinforcement vis a vis others as well as the context in which the behaviour occurs. Rotter's social learning theory specifically emphasizes these two factors in the determination of behaviour and thus seems to lean directly on the phenomenon. For these reasons the authors have chosen to weave interpersonal distancing into the fabric of social learning theory.

The experimental efficiency of the test has been confirmed on a theoretical level by all laboratory experiments and by direct observation in the field of spatial research on animals and human beings (Hediger, Sommer, Hall, Bertacchini..)

The psychometric validity of the test has been verified by Duke and Newicki using a series of different research methods aimed at showing the correlation between the results of the test itself and the assertions of almost all the authors who have been concerned with spatialisation.

The CID was administered to samples of children and adults in order to begin to isolate its psychometric proprieties, specifically reliability and validity.

The research methodology

The subject's minor and major tendencies to the approach once measured, Moreno's sociometric test has been applied to the group to which they belong. At the same time the subject's other characteristics have been shown using Gordon's "Survey of Interpersonal Values"(SIV) questionnaire on the values which are held to be important in interpersonal relationships and using Machover's "Draw a Human Figure" test for

the projective study of the self-image. The sample was composed of 80 subjects between 15 and 17 years old chosen by chance from secondary school, pupils at the same socioeconomic level.

The tests were applied around the end of eight months of the school year on the assumption that after several months of school the students Know one another and they are able to express their choices and rejections quickly.

The students under consideration belonged to three different classes all of the same year. The various tests were applied at intervals of time to avoid any possible influence of one on another.

At first, we wanted to bring out the sociometric composition of each class group .

For the examination and interpretation of results we followed the Bastin's indication (1963). Once the individual subject's position in the group had been established we verified whether the difference between the sociometric status of various subjects was real or apparent due to casual factors.

Within the sample the following emerged:

- 30 popular subjects: that is to say the subjects who had obtained a number of choices ($\bar{p}$) significantly higher than the number estimated according to the law of probability
- 17 isolated subjects: that is to say the subjects who were placed below the lower margin of probability with the $\bar{p}$ score.
- 32 excluded subjects: that is to say the subjects who had obtained a rejection score ($\bar{n}$) significantly higher than that expected according to the law of probability.

Once the popular, isolated and excluded subjects of the three groups had been established, the interpersonal behaviour was then examined closely by analysis of other sociometric indices, in particular of projective choices and rejections.

A difference between exèluded and isolated projective perception and the real sociometric situation was noted.

No statistical significant difference ($p. = .05$) emerged between the projective perception indices of the subjects within the groups ($\acute{p}$ and $\acute{n}$).

All the subjects thought they were refused very little and chosen quite a lot.

As far as the relationship between projective perception ($\acute{p}$ and $\acute{n}$) and rejection received ($\bar{p}$ and $\bar{n}$) we observed that the popular subjects showed a more exact perception of their position within the group than the excluded and isolated subjects.

The popular, excluded subjects did not present substantial differences in choices and rejections expressed, but they were however perceived in different ways by the group. From the calculation of correlations between sociometric indices a substantial relationship (r .43) emerged between the choices received by a subject and the number of people who think themselves chosen by the same subject.

A possible explanation is that the more popular subjects are believed by the groups to be more open to being chosen and are so as a result. The popular subjects received a superior number of choices than the isolated and excluded (perceived as reserved). A positive substantial relationship also emerged between choices expressed and projective perception of subjects (r =.57). In that group the more a subject thinks himself chosen the more choices he makes. This underlines, the importance of projective perception in relation to the subject's interactions in the group.

In fact the isolated and excluded ones did not consider their position one of margination but made a number of choices and rejections equal to the popular subjects.

A further confirmation of this observation has been the importance of the subject's perception of himself within the group's dynamics.

In the first part of the study the interactive dynamics were considered as a hierarchical structure.

In the sociometric test the subject is compelled to make his choices according to a hierarchical order referring to a precise aim whereas in the CID the subject is surrounded by all the members of his group who he approaches in order to establish a generical relationship with them and not a relationship for a definite aim.

This relationship is defined every time projectively from the subject according to the real relationship existing between him and the approach stimulus as well as the individual tendency to maintain a greater and lesser comfortable interpersonal distance.

Therefore in this part of the research the CID is utilised according to the above mentioned instruction as a more immediate measurement of interaction pattern between the group members.

The results

From the results of three groups in the test we have calculated the arithmetical average and the standard deviation (table 1). There are significant diffefences between the results averages; the popular subjects keep a lesser significant distance (p. = .05) than the distance kept by the isolated subjects in comparison with the approach stimulus.

We have noted no significant difference in the distance maintained between popular and excluded subjects.

The isolated subjects are therefore, those who reveal a minor tendency to social approach; they give a lesser number of choices in the sociometric test and in the CID kept greater distances from their partners.

The popular subjects were kept at significantly less distance than that of isolated and rejected subjects.

This means that they are considered to be pleasanter stimuli by their companions.

Isolated and excluded subjects however showed no significant differences in the distances they were kept at but this was a greater distance than popular subjects.

From the factor analysis calculated on the data obtained from the CID and from the sociometric test three indipendent factors have emerged (table 3: roted factor matrix) the first factor presents greater saturation in the indices p(.84) $\tilde{p}$(.72) $\bar{p}$(85) $\grave{p}$(.68) e $\acute{p}$(.83) and assorbs 43.60% of the common variance.

This factor was defined by the number of choices expressed, the number of choices received and projective perception of the subjects. It has been defined the factor of the choice.

With regard to rejections and to the distances expressed and received in the CID two independent factors have emerged. The first with high saturation in the indices $\breve{d}$(.60) $\acute{n}$(.72) $\breve{n}$ (.91) e $\tilde{n}$(.92) which is defined by the distance maintained, by the perception of rejection, and by the rejection received; the second with greater saturation in the indices $\bar{d}$(.60) n(.85) e $\grave{n}$(.69) was defined by distances received or rejections expressed and the perception of rejection.

It has also been observed of the factor score of popular,

isolated and exeluded subjects, that the popular subjects have a greater score in factor I, the excluded subjects in factor II and isolated ones in factor III. This means that, inside the group, there have emerged three interpersonal behaviours of an independent nature: popularity isolation and exclusion; each one defined by particular aspects.

From the three factors we must underline the importance of the dynamics, of the choices of the rejections inside a group and of the perception of choices or of rejection of the subjects. The number of choices and rejections expressed (or received) is in strict relation to the expectation of choice or of rejection of the subject itself.

With regard to the relationship between sociometric status and self image (the main aim of the application of the DFU to our sample) some interesting differences have been observed in the drawing of the human figure between popular, isolated and excluded subjects.

The popular subjects have replied in a more consistent way to the task of drawing a person and have shown that they have a concept of the body which is more differentiaded more precise and with more structure.

In the drawings of the rejected subjects we more often find figures which are strange and extravagant, from which we can see the desire of the subject to amaze, avoid or attract attention.

The isolated subjects draw, for the most part, figures

which are out of proportion, with enormous heads and very small bodies. The faces of their figures have almost no expressions or on their drawings we often find the words "whoever" and "anonymous" "nybody" which reveal the difficulty met with by these subjects in the structuration of the self-image. Therefore the popular subjects have revealed a self-image which is better balanced and a greater sense of adherence to reality; the rejected and isolated subjects, however, have shown that they have a more complex and disturbed self-image.

We have seen how the drawings of the individual subjects reflect a more coherent self-image; this is clear also in the dynamics of their social perception. A subject who has difficulty in self-perception, will also have difficulty in perceiving, understanding and living his own position in the group and viceversa the subject who has a clear image of himself and of the relationships between the people around him also presents a definite sense of his own role in different social groups.

In the present study it has been noticed that the popular subjects express better reciprocal choices than expected which reveals the capacity of these subjects to anticipate the others answers and therefore demonstrate a more exact perception of their own position in the group. In table number 5 we can see the differences between the averages of the SIV results for the three groups considered.

In the SIV, the isolated subjects obtained high scores in the Support scale.

The rejected subjects, however, obtained the lowest scores in the same scale.

In particular, in the Support scale the excluded subjects showed themselves to be less disposed to look for encouragement and support, rather uninterested in obtaining the approval of others and in agreeing with the others and being treated with kindness. The isolated subjects who have the highest score of all the three groups in this scale, show on the other hand, that they are the most in need of understanding, of receiving encouragement and support from others and obtaining approval.

No significant differences have been revealed between the three groups or between the averages of the results in the other scales.

It seems, therefore, that there are no important differences in the choice of interpersonal values between popular, isolated and excluded subjects.

Overall the subjects of the three groups have shown little interest in a leadership of the type presented by this questionnaire; they seem to think that it is not very important to have responsability and authority over other people, to be in a position of leadership and control, to occupy important positions and to be considered as the leader of the group.

However, we have observed that the same subjects obtained

high scores on the Independence scale showing that they have a particular interest in being free to take their own decisions and to be able to do things in their own way, to act without having to follow rules or social conventions.

In short the adolescents considered in the present study give a great value to liberty, to the possibility of acting in their own way without being subject to rules imposed by others.

Differences between males and females in CID

From the data of the different age levels no substantial difference emerged, that is the class of fifteen to seventeen year olds, the subjects of this study, showed themselves to be fairly homogeneous in choices of interpersonal distances in relationships.

No significant difference was observed either within the whole sample between males and females, both sexes showing great similarities in their choice of interpersonal distances, whether in relationships with their own sex, or with the opposite sex, or in general towards all the members of the group.

This is illustrated in table 6 where the average results obtained in the CID from males and females are shown. These results don't agree with those obtained by Magliaccio Robotti in the experiment they carried out on a group of 100 adolescents (50 males and 50 females) in Bologna, aged between 12 and 18, who were given the CID test.

They noted a significant difference within the whole sam-

ple between males and females in so far as the females showed themselves far less disposed than the males to be approached by either members of their own sex or of the opposite sex. Magliaccio and Robotti also show that such differences increase slightly with age, and they interpret such differences as the effect above all of their respective sexual roles rather than puberty.

Thus they conclude that the fact that the females whose sociocultural role is that of submission, reluctance, and reserve, show themselves to a significant extent to be far more defensive of their own personal privacy than the males, shows that they project their female role into spatial positions and not their age. These observations do not appear to have been confirmed in the present study where the girls have shown the same openess in relation to the opposite sex as the male subjects.

This may be explained by the fact that the female model which inspires a lot of girls today is the model of an active, secure, selfdetermined woman who has, an unselfconscious, easy and selfassured manner; something which has traditionally been conceived of as a male prerogative. Therefore one may supose that what the girls project in the test is indeed their female role but as they see it today or at least as they would like it to be.

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TABELLA N° 1

	Popolari		Isolati		Esclusi	
	Ma	Ds	Ma	Ds	Ma	Ds
d^a	34.86	10.96	47.84	12.12	36.25	9.83
d^p	27.34	6.79	39.78	3.73	43.29	6.55

TABLE 2

Correlation Matrix

	d^p	d^a	p	n	p'	n'	$\bar{p}^c$	$\bar{n}^c$	$\bar{p}$	$\bar{n}$	$p^{\backprime}$	$n^{\backprime}$
d^p		.14	-.21	.35	-.30	.22	+.32	27	-.26	22	16	17
d^a			-.28	01	-.44	.32	-.38	53	-.50	51	-.31	17
p				08	57	-.04	47	-.12	.62	.07	.73	08
n					.03	.25	-.09	19	-.03	.20	.22	.45
p'						-.08	.60	-.31	.78	-.23	.50	.05
n'							-.21	.55	-.10	.57	-.11	20
$\bar{p}^c$								-.32	.67	-.31	.42	-.14
$\bar{n}^c$									-.40	-.94	+.18	.21
$\bar{p}$										-.38	43	01
$\bar{n}$											-.16	16
$p^{\backprime}$												.09
$n^{\backprime}$												

TABLE 3

	Factor roted matrix			h^2
d^p	-.34	-.09	.60	.50
d^a	-.43	.60	-.01	.55
p	.84	.04	.07	.72
n	.09	.10	.85	.74
$\acute{p}$	.83	-.15	-.02	.71
$\acute{n}$	.02	.72	.21	.57
$\breve{p}$	.72	-.21	-.23	.62
$\breve{n}$	-.18	.91	.14	.88
$\bar{p}$	.85	-.24	-.07	.79
$\bar{n}$	-.14	.92	.11	.89
$\grave{p}$	.68	-.11	.23	54
$\grave{n}$	.10	.17	.69	.51
%				
Variance	43.60	34.51	21.94	

TABLE 4

Results to the S.I.V. Subjects popol. isol. excl.						
SCALE	POPOLARI		ISOLATI		ESCLUSI	
	Ma	Ds	Ma	Ds	Ma	Ds
Support	19.6	3.9	22.4	1.09	16	2.73
Conformity	11	4.56	11.8	4.48	13	4.2
Recognition	9.6	2.28	11.96	3.13	11.4	2.92
Indipendence	20.3	4.06	20.49	2.17	19.89	7.09
Benevolence	18.4	5.05	14.6	4.54	19.25	8.27
Leadership	9.02	4.95	8.55	3.45	9.95	10.06

Ma = avrege

Ds = Standard deviation

TABLE 5

Difference between the avreges of the S.I.V. results			
SCALE	POP.-ISOL.	POP.-EXCL.	ISOL.-EXCL.
Support	.05	.05	.05
Conformity	NS	NS	NS
Recognition	NS	NS	NS
Independence	NS	NS	NS
Benevolence	NS	NS	NS
Leadership	NS	NS	NS

NS = no significant difference

.05 = difference significant to the p = .05

TABLE 6

Avrege results obteined in the CID

Stimulus	Males	Females
own sex	2.7 NS	2.8 NS
opposite sex	4.4 NS	3.9 NS
both sex	3.6 NS	3.5 NS

No significant difference

$t = .4153 \quad p = .001$

d^p = distance maintained

d^a = distance expressed

p = choices expressed

n = rejections expressed

$\acute{p}$ = projective choices expressed

$\acute{n}$ = projective rejections expressed

$\bar{p}^v$ = choices received and evaluated

$\bar{n}^v$ = rejections received and evaluated

$\bar{p}$ = choices received

$\bar{n}$ = rejections received

$\grave{p}$ = projective choices received

$\grave{n}$ = projective rejections received